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ABSTRACT

This study examined factors affecting academic persistence for Hispanic college students at a private 2-year bilingual junior college (St. Augustine College, Illinois) in terms of the students' integration into the academic and social environment at the college. A sample of 277 Hispanic graduates (78 percent female) participated in the study. Students responded to a questionnaire that provided measures of latent constructs representative of the Tinto theoretical framework for student persistence. Potential measures for student integration into the academic environment included library use, classroom participation, seeking tutorial help, using a computer lab outside of class, meeting with instructors outside of class to discuss academic topics, and meeting with the academic counselor. Social integration was defined as the extent to which the Hispanic environment and interactions with Hispanics at the college were important to students. The study results indicated that the operational definitions of Academic and Social Integration were appropriate to the study population and provided adequate measures of the students' integrative process at the college, suggesting the validity of these factors in examination of model of student attrition for older (over 25) full-time Hispanic 2-year college students. (Contains 36 references.) (GLR)

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THE DIMENSIONALITY OF ACADEMIC AND SOCIAL INTEGRATION IN PERSISTENCE STUDIES OF HISPANIC STUDENTS

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This paper was presented at the annual meeting of the Association for the Study of Higher Education held at the Pittsburgh Hilton and Towers, Pittsburgh, Pennsylvania, November 4-7, 1993. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

INTRODUCTION

One of the most pressing issues facing higher education today is to determine how to increase the number of minority students who earn both undergraduate and graduate degrees. Hispanics are growing in number in the United States and will have increasingly important roles in U.S. society, provided that they are educated. Most Hispanic students in higher education begin in community colleges (56%), a much higher percentage than for non-Hispanic Whites (36%) or African-Americans (20%) (U.S. Department of Education, 1990). Unfortunately, minority students attending community colleges have the lowest retention rates and highest transfer losses (Carter & Wilson, 1991). Hispanic students at community colleges face barriers to persistence because of their age (they are older), low socioeconomic status, and low academic performance (Chacón, Cohen & Strover, 1986). The academic barriers which arise because these students have poor academic performance in high school, poor study habits, and parents who are not well-educated, makes them drop-out prone (Chacón et al., 1986).

Studies have shown (Mow & Nettles, 1990; Richardson & Bender, 1987; Astin, 1982) that students who begin their college studies at a four-year institution are more likely to earn a bachelor's degree than those beginning at a two-year college. Since Hispanic students are concentrated in two-year institutions, their chances for completing the bachelor's degree are reduced. Many minority students who begin at community colleges never complete the associate degree and have no chance of completing the bachelor's degree (Carter & Wilson, 1991). However, the community college is an intermediate step to the bachelor's degree for a large number of promising Hispanics in higher education (Grubb, 1991; Mow & Nettles, 1990); thus, the transfer of these students to four-year colleges and universities is crucial if they are to attain their educational goals. Compared to their representation

in the general U.S. population, Hispanics and other minorities are "more underrepresented at each progressive transition point in higher education" (Mow & Nettles, 1990, p.50).

PURPOSE OF THE STUDY

Concern about the high attrition rate for Hispanic community college students and awareness of the importance of students' integration into the academic and social environment of the college for persistence, led to the present methodological study. The study raised the question of whether operational definitions of academic and social integration employed in persistence studies using the Tinto (1975, 1987) conceptual framework were appropriate for Hispanics at two-year colleges. Indicators of the student's academic and social integration into college were operationally defined and validated for an older Hispanic two-year college population.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Conceptual Framework

Tinto's (1975,1987) model of student attrition presents a schema of dropout behavior and analyzes the role of the institution in influencing the retention of students. Factors related to family background, individual attributes and pre-college schooling are believed to influence the initial goal commitments of the student and his/her identification with a particular institution. These commitments in turn influence students' interactions with the academic and social components of their institutions which lead to academic integration and social integration, respectively. Both integrative processes further influence the final goal and institutional commitments of the student and ultimately impact the decision to persist or withdraw from college.

Persistence Studies

Tinto (1987) stated that the student's daily formal and informal interactions with other persons in both the academic and social domains of the college influenced the student's decision to persist or withdraw. These two components, academic integration and social integration, have been examined in numerous studies of college persistence for resident students at four-year institutions (Pascarella & Terenzini, 1979, 1980; Pascarella, 1980; Pascarella, Duby, Miller & Rasher, 1981; Pascarella, Smart & Ethington, 1986) and for nontraditional students attending two-year institutions (Nora, 1987; Nora, Attinasi & Matonak, 1990; Nora & Rendón, 1990). In general, these studies have validated the importance of the two factors to study the persistence process among different student populations. Lack of integration into the college environment due to lack of sufficient contact with members of the institution was identified by Pascarella and Terenzini (1979) as perhaps the most important predictor of student withdrawal. In a study of college completion by students who began at community colleges, Pascarella, Smart and Ethington (1986) demonstrated that academic and social integration were the most consistent in positive effects on long-term persistence of all the variables in the study. Nora and Rendón's (1990) study of traditional-age Hispanic community college students' predisposition to transfer supported the fact that a high degree of congruence between the student and the academic and social environment of the college leads to a strong institutional commitment which positively influences the student's predisposition to transfer.

Recently, the validity of the Tinto model, which has been used as a conceptual framework for persistence studies over a period of almost 20 years, has been called into question because it was developed for a traditional college population. Tierney (1992) criticizes Tinto's (1975, 1987) concept of

social integration, indicating that ethnic and racial minority students (particularly Native Americans) withdraw from college because they are required to adapt to an environment defined by the dominant culture. Furthermore, they must do this as individuals rather than as a group, which violates their cultural orientation. Therefore, Tierney (1992) recommends consideration of a number of alternative models, one being feminist theory (Bensimon, 1989), in order to reconceptualize student participation in college.

However, several studies with nontraditional populations have demonstrated that the students' integration into the environment of the institution, both academically and socially, is critical for the persistence of these students and their success in college (Nora, 1987, in press; Nora & Rendón, 1990). Population differences may mean differences in the strength of influence of academic integration over social integration or vice versa for some students, or one of the factors may have a negative rather than a positive relationship to other constructs in the model. But the constructs themselves are valid (Nora, in press). Confirmation of the validity of the Tinto (1975, 1987) framework for populations different from traditional college students may require operationally defining the variables in terms appropriate to a given population. It may be that measures used in the past for these constructs were not appropriate for female or ethnic and racial minority students.

Operational Definitions of Constructs

For traditional students

Most studies that tested the Tinto (1975, 1987) model of student attrition and validated the constructs of academic and social integration based their operational definitions of these two constructs on indicators identified by Pascarella and Terenzini (1979, 1980) in a study of traditional university

students in New York. Principal components analysis with a varimax rotation was used to verify the dimensionality of the two factors, which were measured by survey items that loaded on four scales: academic and intellectual development, faculty concern for teaching and student development, informal relations with faculty, and peer group relations. Cumulative grade point average (GPA) for the freshman year and frequency of involvement in extracurricular activities were added measures of academic and social integration, respectively. Several studies of a traditional freshman population in the Southwest (Cabrera, Castañeda, Nora & Hengstler, 1992; Cabrera, Nora & Castañeda, 1992, 1993) selected items from the Pascarella and Terenzini (1979, 1980) studies and added other items to provide multiple indicators of the two constructs. The Cabrera, Castañeda, Nora & Hengstler (1992) study utilized the four-item scale of academic and intellectual development determined by Terenzini, Lorang & Pascarella (1981) to be good measures of academic integration; two items measuring the non-cognitive component of academic integration (I have performed academically as well as I anticipated I would, I am satisfied with my academic experiences); and GPA as a measure of academic performance. The Cabrera, Nora and Castañeda studies (1992, 1993) used the two non-cognitive items above, plus "I am satisfied with my course curriculum," as indicators of academic integration; GPA was a measure of academic performance. The three Cabrera et al. (1992, 1992, 1993) studies contained the same two indicators of social integration: developing close personal relationships, and ease in meeting and making friends.

Another study with a traditional student population was conducted by Pascarella (1985) using Cooperative Institutional Research Program data. A sum of two items measured academic integration: average undergraduate grades and membership in a scholastic honor society. A sum of six items

about students' involvement with peers and faculty measured social integration: knowledge of professor or administrator personally, president of one or more student organizations, service on university or departmental committee, major part in a play, winning a varsity letter, and editor of the school paper, yearbook or literary magazine. The Pascarella, Smart and Ethington study (1986) of four-year residential students who transferred from community colleges used the same measures of academic and social integration as did Pascarella (1985), omitting one item for social integration (service on university or departmental committee).

For students from different types of institutions

In 1983, Pascarella and Chapman compared freshmen from different types of institutions: four-year and two-year, residential and commuter. They used a nine-item scale for academic integration: first semester GPA, expected second semester GPA, hours spent studying per week, number of assigned books read for pleasure, number of cultural events attended, informal contact with faculty on academic topics, peer conversations on academic topics, participation in an honors program or accelerated course, and participation in a career development program. Social integration was measured by an eight-item scale: average number of weekends on campus per month, participation in organized extracurricular activities, number of best friends on campus, "Is there a person on campus you date regularly?", "Do you spend time with college friends on vacation?", peer conversations on social or personal topics, and informal contact with faculty on social or personal topics. The results of this study confirmed the importance of both academic and social integration for persistence, but social integration was a stronger factor in the persistence of resident students at four-year institutions,

whereas academic integration was more important for commuter students at both two-year and four-year institutions.

For commuter students

The Pascarella, Duby and Iverson (1983) study of freshmen commuter students at the University of Illinois at Chicago estimated academic integration by number of credit hours earned first quarter and first quarter GPA, but they did not assess social integration. Another persistence study (Nora, Attinasi & Matonak, 1990) of community college freshmen focused on students who were academically underprepared. Items based on other studies (Pascarella & Terenzini, 1980, 1983; Nora, 1987; Seale, 1984) operationally defined academic and social integration. Eleven items measured academic perceptions, academic involvement and study behavior; 7 items were indicators of social perceptions and social involvement.

For Hispanic community college students

Nora's (1987) study of a Chicano community college population identified two indicators of academic integration: student perceptions of academic experiences, based on interactions with faculty, counselors and administrators; and, student perceptions of career preparation received at the institution. Students' informal contacts with faculty, counselors and other students measured social integration. A 1990 (Nora & Rendón) predisposition to transfer study of 477 Hispanic and 147 White community college students along the U.S.-Mexican border contained four multiple indicators of academic integration: academic perceptions (same items as in Nora 1987 study), transfer perceptions, behavior counseling, and academic behavior. The latter consisted of nine specific items including using the library to study, taking class notes, asking the instructor for help with writing skills, etc. The six

indicators of social integration were: faculty contact outside of class, involvement in extracurricular activities, informal conversations with faculty, reading the college paper, looking at bulletin boards for announcements, and participating in freshman orientation.

Separation of Constructs

While many studies included a student's grade point average (GPA) as an additional indicator of academic integration (Pascarella & Terenzini, 1979, 1980; Pascarella & Chapman, 1983; Pascarella et al., 1983, 1986), later studies (Cabrera, Nora & Castañeda, 1992; Cabrera, Castañeda, Nora & Hengstler, 1992) began to recognize that GPA, though related to academic integration, is a separate measure of academic performance. Tinto (1987) defined the concept of academic integration as the individual's evaluation of the academic system, rather than the student's academic achievement.

Operational Definitions of Constructs in Present Study

The present study was based on the assumption that the constructs of academic and social integration in the Tinto (1975, 1987) conceptual framework are valid, but raised the question of whether operational definitions of these constructs that have been used in past studies are appropriate for Hispanic students, specifically adult Hispanic students, the majority immigrants, attending a two-year bilingual institution. The study attempted to identify measures of the two concepts appropriate for this population.

The students were commuters who spent little time on campus other than the hours in which they were in class, because many were working and/or had family responsibilities. Approximately half needed to enroll in English-as-a-Second-Language classes. In addition, because the environment of the college is Hispanic (and Spanish-speaking), students were part of the "majority" rather than being

the minority at a predominantly White institution. Therefore, traditional indicators of academic and social integration were hypothesized to be limited in their ability to measure the two constructs, and new operational definitions were sought.

Definition of Academic Integration

Several items were incorporated into the survey as potential measures of the student's integration into the academic environment of the college, namely, frequency of the student's participation in classroom discussions (Q1), using the library (Q2), seeking tutoring help (Q3), using a computer lab outside of class (Q4), meeting with instructors outside of class to discuss academic topics (Q5), and meeting with the academic counselor (Q6). (Academic Performance, a separate construct distinct from Academic Integration, was measured by the student's cumulative grade point average at graduation.)

Definition of Social Integration

It was believed that the socialization process for Hispanic students at the study institution was facilitated by interactions with persons from the same background in a compatible cultural environment. Thus, Social Integration for this sample was defined as the extent to which the Hispanic environment and interactions with Hispanics at the college were important to students. Students were asked, "To what extent did each of the following help you to feel at home at the college?" The following items provided potential indicators of the construct: Hispanic faculty and staff (Q21), other Hispanic students (Q22), Hispanic cultural activities during break times (Q23), Hispanic music at dances and other events (Q24), and Hispanic food in the cafeteria (Q25).

The hypothesized factor structure for Academic Integration and Social Integration is presented in Figure 1.

DATA SOURCES

The student population (N=277) consisted of all students from the 1990 to 1992 graduating classes of a private bilingual junior college, which was established to increase the access of Hispanic adults to postsecondary education and to be a bridge institution to mainstream American life. Currently there are 1,400 students enrolled at the main campus or one of the three extensions. As a bridge institution, the college provides a program that enables students who wish to continue their education to transfer to four-year institutions after graduation. The college has an "open door" admissions policy, that is, "...an applicant can be admitted regardless of previous academic record, but minimal skills that indicate an ability to benefit from our programs must be demonstrated" (St. Augustine College Catalog, 1990-91). Students have the opportunity to learn English while they begin their studies in Spanish. The college program is directed toward their integration into society and preparation for better jobs.

The sample was comprised of all students who completed a survey administered prior to graduation as part of the clearance process. Cumulative grade point average for each student was obtained from the registrar's office and evidence of transfer behavior from the transfer center. All students were required to complete the survey instrument. The questionnaire provided measures of latent constructs which are representative of the Tinto (1975, 1978) theoretical framework. The measures of academic and social integration in the questionnaire were based on survey questions from previous studies (Pascarella & Terenzini, 1979, 1980; Pascarella & Chapman, 1983; Nora, 1987; Nora & Rendón, 1990), plus other items added because of characteristics of the study population.

DATA ANALYSIS

Confirmatory factor analysis (CFA) was utilized to examine the psychometric properties of the items measuring the constructs Academic Integration and Social Integration. LISREL 7 (Joreskog & Sorbom, 1989) was employed to analyze the dimensionality of each factor separately in order to determine appropriate indicators for each construct (Joreskog, 1979). The correlation matrix, means and standard deviations for the indicators were generated by PRELIS, a preprocessor for LISREL (See Appendix).

RESULTS

Descriptive Variables

The sample consisted of 277 Hispanic graduates at one two-year college. The students were predominantly female (78%), and their mean age at graduation was 34 years. Only 14 percent were born in the United States; the other 86 percent came from Puerto Rico (30%), Mexico (28%), Central America (13%), South America (11%), or other Caribbean countries (3%). On an average, the students had spent 15 years in the United States.

The graduates were similar in socio-economic background. Forty-two percent were married and another 24 percent were either divorced, widowed or separated. Eighty-one percent were responsible for raising children. Annual household incomes were low: 92 percent had incomes of $25,000 or less, and 67 percent of the incomes were at or below $15,000 per year. Over a third (35%) of the graduates worked 40 hours or more each week at outside jobs; another 17 percent worked 10 or more hours per week at on-campus jobs. Parents of over half of the graduates had received no more

than six years of formal schooling, although 8 percent of the mothers and 9 percent of the fathers had completed more than 12 years of education.

Close to 90 percent of these graduates were first-generation college students. Furthermore, they were out of school for an average of 9 years before enrolling in college. Only 20 percent graduated from high school in the United States, another 50 percent received the General Education Diploma (GED), and almost a third of the sample (31%) completed high school outside the United States. Seventy percent of the graduates indicated that they intended to earn a bachelor's degree or a degree beyond the bachelor's.

Confirmatory Factor Analysis

Findings of the confirmatory data analysis indicated highly reliable and valid psychometric properties of the items measuring the latent constructs in the structural model, including the constructs of Academic and Social Integration. Frequency of student participation in classroom discussion (Q1) was the single valid indicator of Academic Integration. Multiple valid indicators of Social Integration were the presence of Hispanic faculty and staff (Q21), other Hispanic students (Q22), and Hispanic cultural activities during break times (Q23). The factor loadings and unique variances for each of the indicators of the two latent constructs of Academic and Social Integration are given in Table 1. The final measurement model is presented in Figure 2.

T-values for the estimated parameters were significant, denoting that they were good measures of the constructs. Measures of goodness of fit for the measurement model included the goodness-of-fit index, adjusted goodness-of-fit index, root mean square residual, chi square ratio, and chi square divided by degrees of freedom. The results were the following:

Chi square (df=59) = 84.86 (p=.015)
x^2/df = 1.44
Goodness-of-Fit Index (GFI) = .989
Adjusted Goodness-of-Fit Index (AGFI) = .980
Root Mean Square Residual (RMR) = .036

Byrne (1989) proposes ranges for the various measures, similar to the standards established by other authors (Pedhazur, 1982; Anderson & Gerbing, 1988; Marsh, Balla & McDonald, 1988; Joreskog & Sorbom, 1989). The goodness-of-fit index and the adjusted goodness-of-fit index for the hypothesized measurement model should be close to 1.00; the GFI was .989 and the AGFI .980, both meeting the standard for a good fit. The root mean square residual should be less than .05, and it was .036. The chi square divided by degrees of freedom should be lower than 2.0, and it was 1.44. The results meet the standards set for evaluating the quality of the measurement model; therefore, the measures of the constructs are acceptable.

This study of persisters at one institution demonstrated that operational definitions of Academic and Social Integration appropriate to the study population provided adequate measures of the students' integrative process at the college and suggested the validity of these factors in the Tinto (1975, 1987) conceptual model of student attrition for older (over 25) full-time Hispanic community college students.

IMPLICATIONS OF THE STUDY

Both student and institutional characteristics limit the generalizability of the findings to two-year institutions and to Hispanic students with very similar characteristics. This institution-specific orientation follows the recommendation of Tinto (1987) for persistence studies, namely, that one must study each institution and the experiences of individuals within each institutional setting in order to know why

students depart. Nora (in press) has also made the point that models of student behavior must be operationalized according to the conditions at a particular institution.

Implications for Practitioners

Mow and Nettles (1990), who have studied minority students, suggest that single-institution studies, in addition to providing insights to help explain the college experiences of minority students, can both help the institution meet its "own unique challenges" and "raise issues that should be addressed at other campuses (p.48)." Given the significance of students' integration into the academic and social environment of the college for persistence and success in college, it is important that these concepts be operationalized correctly for each student population. Once the validity of the indicators is established, the institution can strengthen the academic and social integration of their students by providing experiences like those found to be related to the two factors. For the study institution, several steps could be taken. Faculty development programs could focus on teaching methodologies that could be adopted to enhance their students' capability and opportunity to participate in class. The academic departments and student services staff could identify additional formal and informal means of interacting with students, including students' involvement in planning cultural activities on campus. Because the institution is predominantly Hispanic, it has the advantage of being able to serve students in a way that respects their language and culture and makes integration into the college environment easier than if they were attending a predominantly White institution.

Implications for Researchers

The study suggests the importance of appropriate operational definitions for each of the factors when utilizing Tinto's (1975, 1987) conceptual framework with at-risk minority populations. Thus, the

most valuable persistence studies may be those that are institution-specific. The present study was an initial investigation with a sample of persisters (graduates). A longitudinal research study should be initiated at the study institution with a cohort of all incoming freshman students in an attempt to identify additional measures for the student's academic and social integration and to document the importance of these two factors in the persistence process.

Other studies should be undertaken at the study institution and at other two-year colleges which investigate various measures of academic and social integration and other variables in the Tinto (1975, 1987) model appropriate to various minority student populations. Such methodological clarification in relation to the operationalization of variables may allow for a more extensive use of the Tinto (1975, 1987) model in studies of persistence of minority students at community colleges.

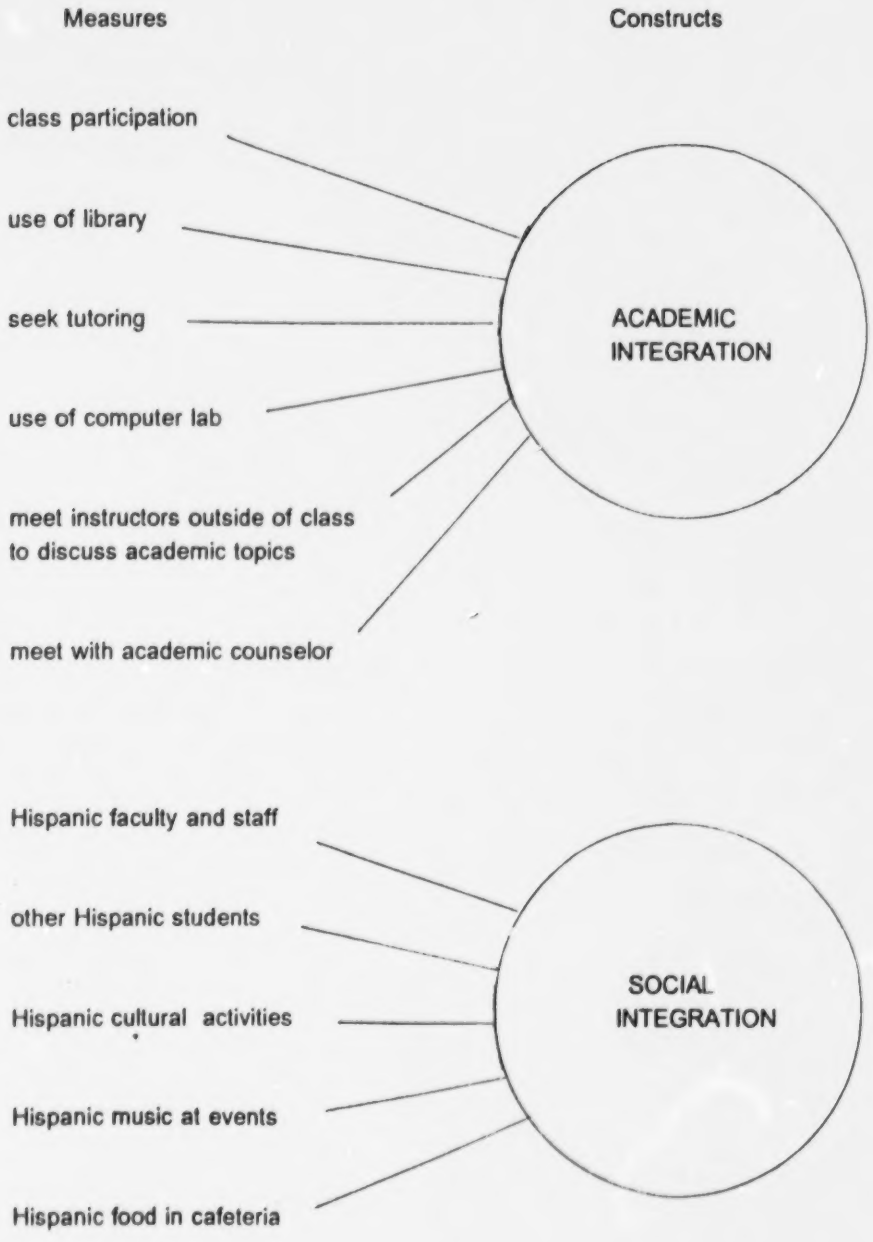

Figure 1. Hypothesized factor structure for constructs of academic and social integration

Table 1

Factor Loadings and Unique Variances for the Constructs of Academic and Social Integration

Construct	Measure	Factor Loading	Unique Variance
Academic Integration	participation in class discussions (Q1)	.995	.010
Social Integration	Hispanic faculty & staff (Q21)	.795	.367
	other Hispanic students (Q22)	.719	.484
	Hispanic cultural activities during break times (Q23)	.744	.447

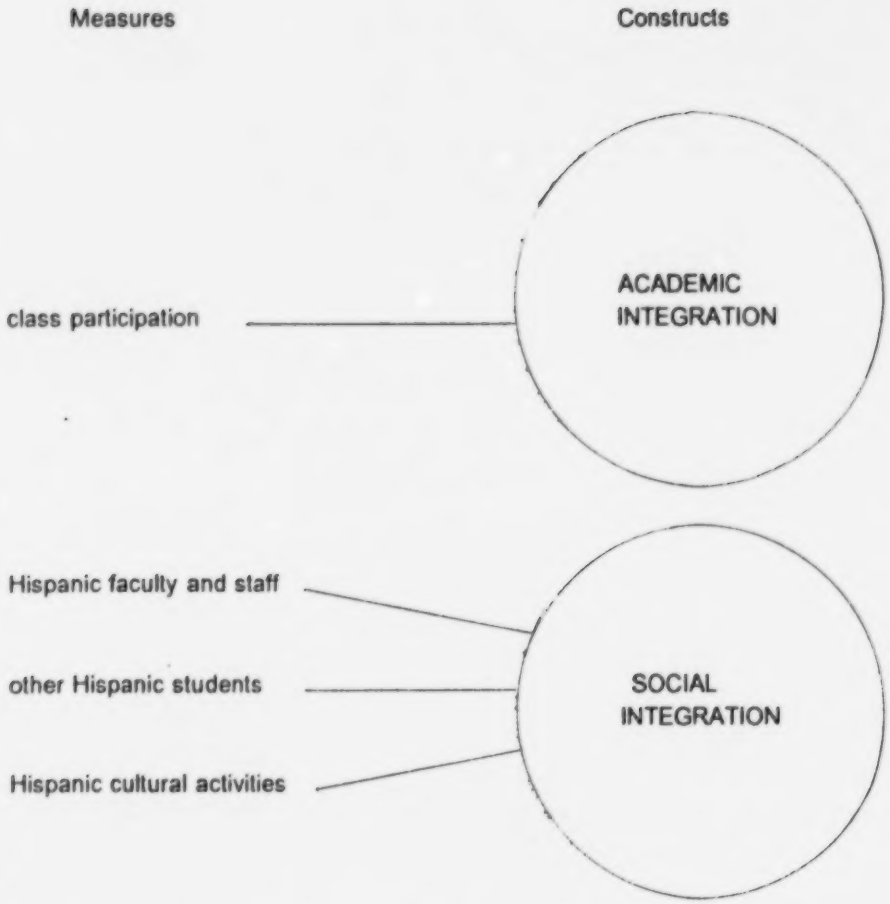

Figure 2. Final measurement model for constructs of academic and social integration

APPENDIX

Part 1. Correlation Matrix for Items Measuring the Constructs of Academic and Social Integration

	Q1	Q21	Q22	Q23
Q1	1.000	.128	.184	.149
Q21	.128	1.000	.637	.587
Q22	.184	.637	1.000	.469
Q23	.149	.587	.469	1.000

Part 2. Means and Standard Deviations for Items Measuring the Constructs of Academic and Social Integration

Variable	Mean	S.D.
Academic Integration		
Q1 - participation in class	4.231	0.854
Social Integration		
Q21 - Hispanic faculty and staff	4.245	1.034
Q22 - other Hispanic students	4.148	0.983
Q23 - Hispanic cultural activities at breaks	4.040	1.094

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